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Searches for supersymmetry with the ATLAS detector

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Supersymmetry (SUSY) provides elegant solutions to several problems in the Standard Model, and searches for SUSY particles are an important component of the LHC physics program. Naturalness arguments for weak-scale supersymmetry favour supersymmetric partners of the gluons and third generation quarks with masses light enough to be produced at the LHC. Moreover, the direct production of electroweak SUSY particles, including sleptons, charginos, and neutralinos, is a particularly interesting area with connections to dark matter and the naturalness of the Higgs mass. This talk will highlight the latest results of searches conducted by the ATLAS experiment which target supersymmetric particles produced via both strong and electroweak processes in R-parity conserving scenarios, including a discussion of new techniques to target compressed regions which have historically been difficult to access due to small mass splittings between SUSY particles.

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